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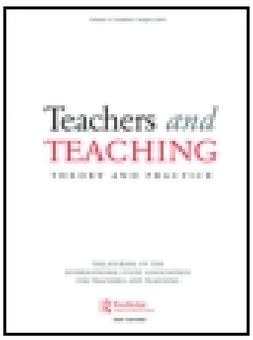
DOI: https://doi.org/10.1080/13540602.2020.1834380



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theory and practice

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/ctat20

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To cite this article: Melanie M. Keller & Eva S. Becker (2020): Teachers' emotions and emotional authenticity: do they matter to students' emotional responses in the classroom?, Teachers and Teaching, DOI: 10.1080/13540602.2020.1834380

To link to this article: https://doi.org/10.1080/13540602.2020.1834380

TEACHERS AND TEACHING
https://doi.org/10.1080/13540602.2020.1834380

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Teachers' emotions and emotional authenticity: do they matter to students' emotional responses in the classroom?

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ABSTRACT

Teachers frequently employ surface-acting strategies to regulate emotions and to be more effective. This can be detrimental for teachers' health but the effects of such inauthentic emotion expressions on students are largely unexplored. In two exploratory studies we investigated the impact of teachers' emotions and emotional authenticity (expressing truly felt emotions) on students' emotions of enjoyment, anger, and anxiety. In study 1 we used generalised (trait-level) assessments from teachers (N = 81) and students (N = 786) on emotions and emotional authenticity. As emotions are dynamic in nature, we further used the experience sampling method with a randomly chosen subsample (N = 128 students) in study 2 to assess momentarily perceived teacher emotional authenticity and students' emotions in the classroom. In study 1 we found teachers' and students' self-reported enjoyment (but not anger and anxiety) to be interrelated. In study 2, all three (perceived) teacher emotions were related to students' emotions. Further, in both studies students' perceptions of their teachers' emotional authenticity related to their own emotions. Although teachers' self-reported and students' perceived emotional authenticity did not converge, the results show that emotional authenticity matters to students. Implications for future studies but also for teachers' emotion regulation are discussed.

ARTICLE HISTORY
Received 29 March 2019
Accepted 3 October 2020

KEYWORDS
Teacher emotions; student emotions; emotional authenticity; experience sampling method

The emotions students experience when in class are influenced by a number of factors, including teachers' emotions and display thereof (see Pekrun, 2006). In fact, individuals 'catch on' their interaction partner's emotions, a process called emotional transmission in the teaching context (Frenzel et al., 2018) and outside of the teaching context investigated as emotional contagion (Hatfield et al., 1993) or emotional crossover (Bakker & Demerouti, 2013). Over the past years, empirical evidence has accumulated that this process occurs also within classrooms (e.g. Frenzel et al., 2018).

Having a good relationship with the teacher based on positive emotional interactions and reciprocal trust is conducive to learning (e.g. Reyes et al., 2012), and thus social-emotional aspects of the teacher–student relationship are inherent to many classroom instruction models (Kunter et al., 2013; Pianta & Hamre, 2009). Establishing and

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Supplemental data for this article can be accessed here.

managing such a positive classroom climate requires the teacher to employ various teaching and emotion-regulation strategies (Jennings & Greenberg, 2009): In order to be more effective, have a better relationship with students and present a positive emotional image to their students, teachers regulate their emotions and emotion expressions (Sutton, 2004). This emotion regulation occurs on a daily basis and even from lesson to lesson (e.g. Keller, Chang et al., 2014). Thereby, in situations when teachers employ so-called surface-acting strategies (e.g. Grandey, 2003), teachers' emotion experiences no longer match their emotional expressions; we call this mismatch between emotion experience and expression *lack of emotional authenticity*(called elsewhere emotional dissonance, Keller, Chang et al., 2014), and, reversely, the match between experience and expression *emotional authenticity*. Although lack of emotional authenticity has been shown to be detrimental to teachers (Hülsheger & Schewe, 2011), the student perspective is underexplored. A qualitative study by Jiang et al. (2016) found that the teacher whom students perceived to often experience negative emotions was also the teacher employing surface-acting strategies, leading to the assumption that students know when a teacher is not authentically displaying his or her emotions. From experimental laboratory studies, it is known that not only can individuals differentiate authentic and inauthentic emotions in the facial expression of others (McLellan et al., 2010), but also that perceived emotional authenticity influences recipients' emotional reactions and behaviour (Johnston et al., 2010; Surakka & Hietanen, 1998). Given these findings, students should be able to determine their teachers' emotional (in)authenticity, but empirical results are needed to support this assumption. Understanding the impact teachers' emotion regulation has on students is important for guiding future recommendations for teachers regarding sustainable and beneficial-for-all (i.e. not only for teachers but also for students) emotion-regulation strategies.

Taken together, the current study aims to investigate (1) the extent to which teachers are perceived as emotionally authentic in the classroom and how this perceived authenticity converges with teachers' self-reported emotional authenticity, and (2) how teachers' emotions and emotional authenticity affect students' emotions in the classroom.

Theoretical background

Emotions are part of humans' everyday life and play an important role in teachers' and students' daily classroom interactions. Recent years saw an impressive uptick in investigations on discrete emotions of both teachers and students (for an overview see Pekrun & Linnenbrink-Garcia, 2014). Teachers' emotions are influential with regards to, for example, their occupational health and well-being (Taxer & Frenzel, 2015) but also students' learning and development (Klusmann et al., 2016). Thereby it has become increasingly evident that teachers' and students' emotions cannot be regarded separately from each other but are in fact intertwined (e.g. Frenzel et al., 2018).

Teacher emotions

Being a teacher is oftentimes described as a passionate profession and teaching as an intense and emotional activity (Hargreaves, 1998b). It is therefore not surprising that teachers report to experience a variety of discrete emotions during teaching (see

Frenzel, 2014), most prominent among them enjoyment (e.g. Frenzel et al., 2018) and enthusiasm (Keller, Goetz et al., 2014), anger and frustration (Sutton, 2007), anxiety (Frenzel et al., 2016) and pride (Prawat et al., 1983). Yet, not all of these emotions are always felt to be appropriate in the classroom: Teachers usually strive to present a positive emotional image to their students and regulate their emotions to achieve that aim (Sutton, 2004). In fact, emotions are conceptualised as consisting of several components (see, for example, Izard, 2010), including a feeling (i.e. affective) component—which is usually considered the indispensable and central emotion-component—and an outwardly visible expressive component. Research has found that teachers regulate their unpleasant emotions such as anger, amongst other strategies, by suppressing the emotion expression (e.g. Taxer & Frenzel, 2015). Suppression, however, leads to a discrepancy between the emotion experience and the emotional expression, so-called emotional dissonance or lack of emotional authenticity.

Teacher emotional authenticity

In general, authenticity refers to 'the degree to which a person acts in agreement with one's true self' (Van den Bosch & Taris, 2014, pp. 2–3). It includes being genuine and exhibiting consistency between one's values and actions. One aspect of authenticity is *emotional authenticity*, which is given when the two emotion components—feeling and expression—are congruous, or in other words 'when one's emotional expression display reflects one's current emotional experience' (Ashforth & Tomiuk, 2000, p. 195). Emotional authenticity is typically associated with sincerity and spontaneity (Salmela, 2005) and on a deeper level stems from having incorporated professional values and norms into one's self and identity (Erickson, 1995). This internalisation enables an individual to genuinely express the experienced emotion because the experience matches the perceived norms and ideals in the first place. Such norms and ideals (also called display rules; Diefendorff & Richard, 2006) in teaching are for instance, that teachers want to appear enthusiastic to their students and aim to show a positive emotional image in the classroom (Sutton, 2004).

Emotional authenticity can also be achieved in situations in which a teacher experiences emotions that do not match the display rules: Feelings and expressions can be aligned by using deep acting strategies (see Hülsheger & Schewe, 2011), that is the individual 'attempts to modify feeling to match the required display' (Grandey, 2003, p. 87). Adaptive deep acting strategies are for instance, cognitive reappraisals (Gross, 1998). However, if a teacher uses surface-acting strategies like the suppression or faking of an emotional expression in order to outwardly conform to the idealised emotion image without altering the emotion feeling (Lee et al., 2016), this results in an ongoing internal state of emotional dissonance. Emotional dissonance is frequently experienced by teachers (e.g. Keller, Chang et al., 2014) and refers to the discrepancy between the experienced emotion and the one outwardly displayed (Abraham, 1998), hence a lack of emotional authenticity. Although much research has shown that emotional dissonance is detrimental to teachers' occupational well-being (e.g. Näring et al., 2006), an interpersonal perspective on possible relations to students' experiences is still lacking.

Relations between teacher emotions and emotional authenticity and student emotions

In interpersonal settings, emotions provide important information about the others' feelings, intentions, or motives thus enabling the perceiver to adequately respond and adapt his or her behaviour (see, for instance, Van Kleef, 2010). For example, when perceiving an emotional display such as laughter, individuals may automatically try to evaluate the others' emotional state (McGettigan et al., 2015) or make inferences about their character (Hareli & Hess, 2010). These rather conscious processes are complemented by emotional contagion processes (individuals 'catch on' another's emotions) and, as a result, individuals' emotional experiences in social setting are closely interwoven. According to Hatfield et al. (1993), emotional contagion occurs because individuals 'automatically mimic and synchronize expressions, vocalizations, postures, and movements' (p. 96) and because of this mimicry they converge emotionally through what is called afferent feedback (on afferent feedback, see also Jänig, 2003). There is a wide range of empirical evidence for emotional contagion processes, for instance, between service employees and customers (e.g. Pugh, 2001) or in couples (where the process has been referred to as emotional crossover; Bakker & Demerouti, 2013). Beyond these social settings, emotional contagion also occurs in educational contexts that is in classrooms and between teachers and their students, although research in this area is still in its infancy. Empirical findings extend to contagion processes of discrete emotions (Becker et al., 2014), particularly enjoyment (Frenzel et al., 2009) but also to affectively toned constructs such as flow (Bakker, 2005) or interest (Keller, Goetz et al., 2014).

However, when the emotions an individual display in interpersonal contexts provide important information, perceivers' adequate and adaptive responses are impeded when the emotional expression is perceived as insincere: In this case, the cues provided by the others' emotion expression are insufficient or deemed unreliable by the observer to deduce the others' intentions (see Van Kleef, 2010). Whether an expressed emotion is authentic or inauthentic can usually be determined by individuals (McLellan et al., 2010) and consequently influences the observers reactions. Emotional authenticity results in overall favourable impressions in observers and increases their cooperative behaviour (Johnston et al., 2010), compliance (Côté et al., 2013) or positive affect (Surakka & Hietanen, 1998). However, a study in the field of employee–customer interactions found a negative effect of surface acting on customers in cases when they recognise the employee's surface-acting strategy (Groth et al., 2009). This nuanced assessment of the impact of surface acting on customers adds to the extant research in organisational behaviour that surface acting is generally good for customers, but bad for employees' health. Evidently it is bad for customers as well, namely in the case when they recognise it as an act (see also Grandey et al., 2005; Wang & Groth, 2014).

The current study

The present study explores the role of teachers' emotions and emotional authenticity for students' emotions. We extend laboratory research on emotional authenticity (e.g. Surakka & Hietanen, 1998) and research from organisational behaviour about the effects of employee surface acting on customers contingent on their detecting it as an act (Groth

et al., 2009) and investigate whether emotional authenticity matters in the classroom and for students. The present study is thereby intended as a first step to explore whether the well-known effects of surface acting on teachers need to be complemented by including effects on students as well. It is hypothesised that teacher emotions (enjoyment, anger, and anxiety) are linked to the respective students' emotional responses (H1); that is, teacher enjoyment should positively relate to students' enjoyment, teacher anger positively relate to students' anger, and finally teacher anxiety positively relate to students' anxiety. Additionally, teachers' emotional authenticity should influence students' emotions along their valence dimensions, i.e. positively relate to students' enjoyment and negatively relate to students' anger and anxiety (H2).

To address these research hypotheses, we conducted two studies. In study 1, we assessed via teacher self-reports as well as via students' perceptions teachers' emotions and their emotional authenticity, and students' emotions on a generalised (i.e. trait-level). Thereby, we were interested to what extent teacher emotions and authenticity influence students' emotions, but also the extent to which students' perceptions of teacher emotions and emotional authenticity converge with teachers' self-reports.

To account for the dynamic nature of student emotions, study 2 (composed of a subsample of students from study 1) utilised a momentary assessment design (e.g. Barrett & Barrett, 2001) to assess students' perceptions of teachers' emotional authenticity and emotional responses within the concrete situation in the classroom. Thereby, we investigated instances in which teachers were perceived as more or less authentic and how this related to students own emotional responses in that instance.

Methods

Procedure and sample

The present analyses are based on data gathered from a larger longitudinal research project that focused on antecedents and effects of students emotions, cognitions and motivation in different academic domains. The project was conducted with eight upper-track schools from multiple German-speaking Swiss cantons from 2012 to 2015 (Grade 9 to 12). Only schools in which all targeted academic domains (German, English, French, and mathematics) were taught as a compulsory subject in each wave of data assessment were considered for participation. As the study aimed to assess approximately 800 students, recruitment was stopped after eight schools agreed to participate (two other contacted schools did not agree to participate due to organisational reasons).

Study 1 uses data from the first wave of data assessment in 2012 in which $N = 786$ students from 39 ninth-grade classes reported on demographics and rated their own emotions as well as perceptions of their teachers in four subjects (German, English, French, and mathematics) in a paper-and-pencil questionnaire. Questionnaires were administered to them by trained testing personal during a regular school lesson. Teachers who taught these subjects in these classes were invited to participate in a questionnaire study via school mail. Participation was voluntary and teachers received an envelope to anonymously send back the questionnaires (matching between the classes and teachers was done with numeric codes printed on the questionnaires). A total of $N = 81$ teachers sent back their questionnaire, which is more than every second contacted

teacher (156 teachers were contacted, that is four teachers for each of the 39 participating classes).

Of the students in study 1, N = 128 were randomly chosen to participate in the experience sampling study, i.e. in study 2. These students were handed an electronic device (iPod Touch) for two weeks which was pre-programmed with the state questionnaires. The sampling plan was a combination of random and event sampling. That is, prior to class students activated the device (event sampling) which would then randomly signal once during the following 40 minutes and prompt students to report on the state variables (random sampling). Only regular classes were selected for the ESM-assessment (that is, no exams were included) and covered again the four subjects (German, English, French, and mathematics).

Average age of students was 15.64 years (SD = 0.62 years) and 54% were female. Teachers were on average 45.79 years old (SD = 10.57 years) and 31 were female, 47 male and three did not indicate their gender. Students' momentary assessment covered altogether N = 1801 state assessments, which was an average of 14.07 assessments per student.

Instruments

Study 1

Emotions. Teachers' as well as students' emotions (enjoyment, anger and anxiety) were assessed with single items (e.g. 'In CLASS I am usually happy.' for teachers' and students' enjoyment, respectively). The items were chosen based on established instruments for the assessment of students' emotions (Pekrun et al., 2011) and teachers' emotions (Frenzel et al., 2016). Thereby, the choice for the single item for assessing emotions was based on previous studies including multi-item scales: The item with the highest item-scale correlation and best face validity to represent the underlying construct was chosen as single item in the present study. Single-item assessment is common in ESM-studies in the educational context (for similar assessments, see, for example, Goetz et al., 2015) and single items for emotional self-report showed adequate reliability (Gogol et al., 2014). In study 1, single items were used for the trait assessment to make findings comparable to the experience sampling assessment in study 2.

Perceived teacher emotions. In addition to their own emotional experiences, students also reported on their perceived teacher emotions (enjoyment, anger and anxiety) by rating three single-items 'My teacher is usually happy/angry/tense and nervous in CLASS.'

Emotional authenticity. In order to continue investigations into teachers' emotional authenticity mainly conducted with respect to teachers' occupational well-being and emotional labour, we chose to assess authenticity via items for emotional dissonance; that is, we assessed teachers' lack of emotional authenticity, and then recoded the items. Thereby, we focused on suppression of emotions and faking of emotions. These are two surface-acting strategies which should result in an imbalance between perceived and expressed emotions, that is lack of emotional authenticity. Therefore, we drew on teacher emotional labour literature and the construct of emotional dissonance and adapted two

items from the emotional dissonance instrument by Zapf et al. (1999). In addition, we asked students to evaluate their teachers' emotional authenticity by using an adapted form of these two items. Reliability of emotional authenticity was estimated via the omega coefficient, which draws on multilevel CFA and weighs the common variance of all items belonging to one factor by the total variance of all items (see Bolger & Laurenceau, 2013); ω =.81 and .87 for student perceived and teacher self-reported emotional authenticity, respectively, indicated good reliability. The respective two items were recoded for higher values reflecting higher levels of authenticity and averaged for further analyses.

All constructs were assessed context-specific: All items were formulated in a way to refer to the classroom experiences of teachers and students (e.g. for teachers: 'During teaching in CLASS . . . ', and for students 'My teacher in CLASS . . . '). All items could be rated on a 5-point scale from (1) *not at all* to (5) *very strongly*. The exact item wordings are shown in Appendix Table A1.

Study 2

In study 2, students repeatedly reported on momentary perceptions and experiences at a random time point during a lesson. Three single items targeted students' momentary emotional experiences 'At the moment, I'm happy/angry/anxious'. In addition, perceived teacher emotions were assessed, also with one item each (for example, 'At the moment my teacher is happy'). Finally, emotional authenticity was assessed by students' rating of 'The emotions my teacher displays at the moment are authentic'.

All items were rated on a five-point scale from (1) *strongly disagree* to (5) *strongly agree*. Item wordings for study 2 are shown in Appendix Table A2.

Data analysis

In study 1, student ratings (N = 1653) were nested within teachers (N = 81), and in study 2 state assessments (N = 1801) were nested within students (N = 128). In order to yield reliable estimates of standard errors, multilevel modelling was utilised using the M*plus* software (version 7.11, Muthén & Muthén, 1998/2012) and the 'Type is Twolevel' option.

In study 1, all models were estimated on the between level only, that is results indicate relations between teachers and classes. In study 2, we investigated within-person relations by group-mean centering all variables (that is centering at the person mean, see also Enders & Tofighi, 2007) prior to analyses; thus, results denote relations within individuals (i.e. students) and reflect situational fluctuations in variables irrespective of between-person differences.

Results

Study 1

For teachers as for students, enjoyment was the most prominent emotion, followed by anger and anxiety (see Table 1). Teachers themselves reported and similarly were perceived by students as highly emotionally authentic. As evidenced by the intraclass

Table 1. Descriptive Statistics of Study 1 Variables.

	M	*SD*	ICC
Teacher emotions (teacher self-report)			
Enjoyment	4.12	0.38	–
Anger	1.58	0.52	–
Anxiety	1.46	0.52	–
Teacher emotions (student perceptions)			
Enjoyment	3.54	1.07	.34
Anger	2.08	1.06	.41
Anxiety	1.66	0.95	.29
Teacher emotional authenticity			
Teacher self-report	4.48	0.36	–
Student perceptions	4.20	0.85	.09
Students' emotions			
Enjoyment	2.96	1.15	.20
Anger	1.96	1.15	.17
Anxiety	1.35	0.79	.10

The analyses were run with the Type is Twolevel Basic option in M*plus*, student ratings ($N = 1653$) were nested in teachers ($N = 81$). Average cluster size was 20.41, ICC (intraclass correlation) gives the proportion of variance on the between-level.

correlations (ICC), there was substantive variance of perceived teacher emotions across classes, that is classes differed in their average perceptions of teachers' displayed enjoyment, anger and anxiety. Still, the majority of variance was within classes, that is there was substantive difference of perception of students within one class. The same was true for perceived teacher emotional authenticity, yet here the between-class variance was comparably small (9%) indicating that perceived teacher emotional authenticity is rooted almost entirely within students' individual perceptions and does less reflect systematic differences between teachers.

In a first step, we were interested in the extent to which ratings of teachers and students on teachers' displayed emotions and emotional authenticity converge. We found that teachers' self-reported emotions and students' perceptions of these emotions are positively correlated (correlations between teacher self-reported and student perceived teacher enjoyment: $r = .39$, $p < .001$; anger: $r = .55$, $p < .001$; anxiety: $r = .25$, $p = .11$), indicating that teachers express their felt emotions in a way that students can perceive them (see correlation table in Supplementary S1). The correlation between teachers' self-reported and student perceived emotional authenticity, on the other hand, was positive yet negligible ($r = .06$, $p = .65$): Teachers who reported being more authentic in class were not perceived as more authentic by students.

To test the extent to which teachers' emotions and emotional authenticity affected students' emotional experiences in class, we calculated stepwise multilevel regression models (Figure 1). We found that teachers' self-reported and student perceived teacher enjoyment and anger, respectively, impacted students' enjoyment and anger; the same pattern was not apparent for anxiety. Only students' perceptions but not teachers' self-reported emotional authenticity contributed in explaining variance in students' emotions. In accordance with the hypothesis higher levels of perceived authenticity related to higher levels of enjoyment, but lower levels of anger and anxiety in students.

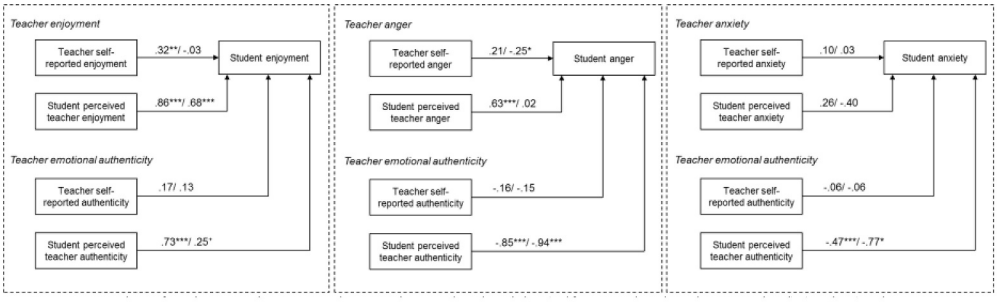

Figure 1. Regression of student emotions on teacher emotions and authenticity (self-reported and student perceived) (study 1). The regression weights are standardised (β). The values before the dash indicate the regression weights with the respective variable as single predictor, and the values after the dash indicate regression weights when all predictors are simultaneously included. $^{+}$ p <.10. * p <.05. ** p <.01. *** p <.001.

Table 2. Descriptive Statistics of Study 2 Variables.

	M	*SD*	ICC
Student perceived teacher emotions			
Teacher enjoyment	2.99	1.12	.22
Teacher anger	1.82	1.09	.19
Teacher anxiety	1.76	1.01	.23
Student perceived teacher emotional authenticity	4.32	0.84	.25
Students' emotions			
Enjoyment	2.84	1.19	.21
Anger	1.82	1.18	.18
Anxiety	1.43	0.93	.28

All items were rated on a scale of (1) *strongly disagree* to (5) *strongly agree*. Descriptive values of study variables are based on a nested data structure of states (diary entries, level 1, N = 1801) nested within students (level 2, N = 128), with an average cluster size of 14.07. Variance was decomposed into a within-person component (σ^2) and a between-person component (τ^2). The standard deviation is based on the total variance, whereas the intraclass correlation, ICC, gives the percentage of variance that lies on the between-level, ICC $= \frac{\tau^2}{\tau^2+\sigma^2}$.

Study 2

Similar to the trait assessment in study 1, enjoyment was the most prominent student and teacher emotion (as perceived by students), followed by anger and anxiety (see Table 2). Also comparable to study 1, students momentarily perceived their teachers as highly authentic. As indicated by the intraclass correlations, perceived teacher emotions as well as emotional authenticity and students' emotional experiences had similar and high within-person variance components: The majority of variance (between 72% and 82%) lay within students and thus on the situational level.

Stepwise regression models (see Figure 2) revealed—on the within-person that is situational level—that perceived teacher emotions related to students' emotions in a way that higher teacher enjoyment, anger and anxiety related with respective elevated levels of students' enjoyment, anger and anxiety. Teachers' emotional authenticity mattered: The more students perceived the teacher to be authentic within a given teaching situations, the higher their own enjoyment and the lower their anger and

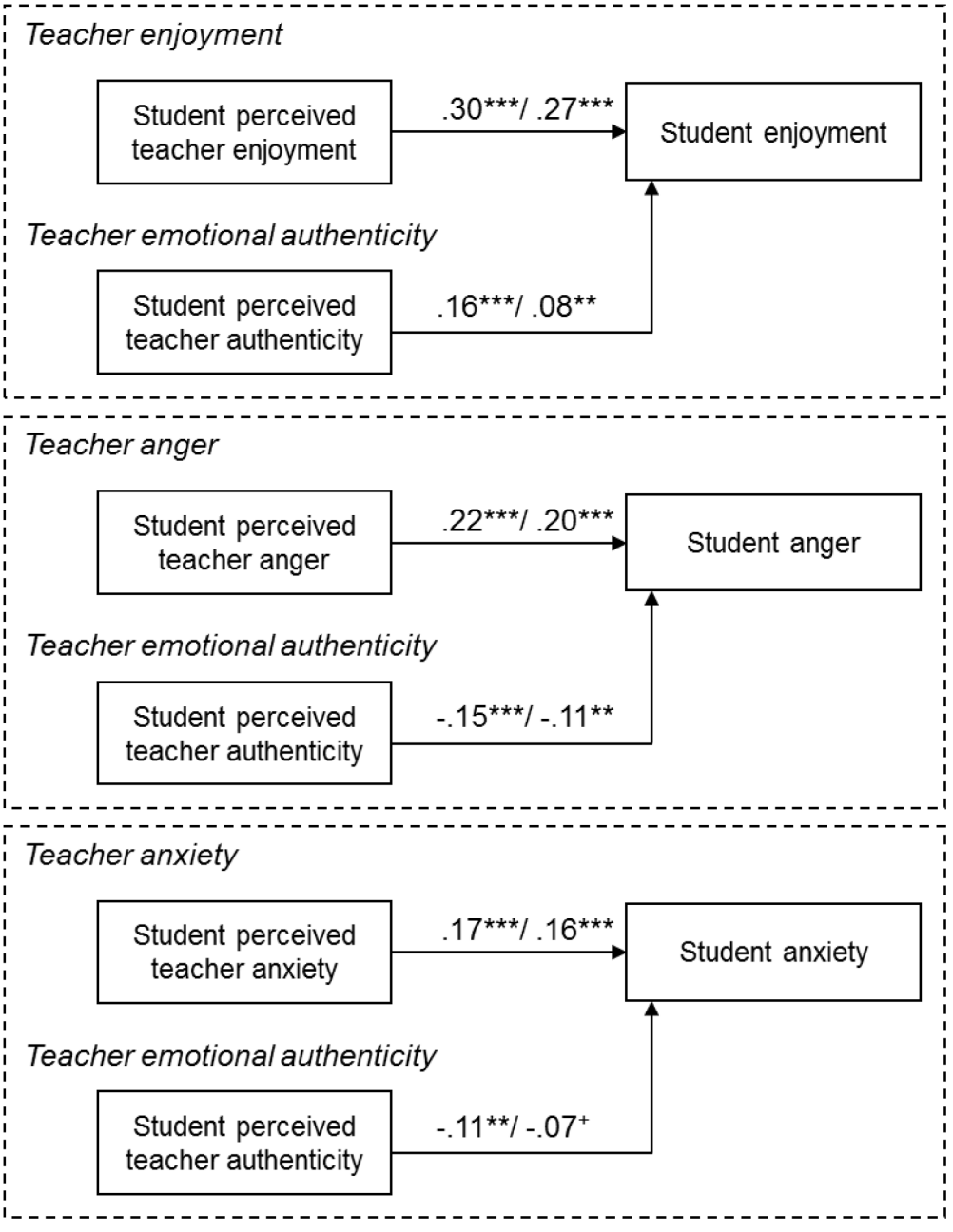

Figure 2. Regression of student emotions on perceived teacher emotions and authenticity (study 2). The regression weights are standardised (β). The values before the dash indicate the regression weights with the respective variable as single predictor, and the values after the dash indicate regression weights when all predictors are simultaneously included. All regression weights refer to within-person effects. $^{+}$ p <.10. * p <.05. ** p <.01. *** p <.001.

anxiety; with the exception of anxiety, these effects of authenticity on students' emotions remained when including student perceived teacher emotions as predictors.

Discussion

The present study investigated the role of teachers' emotions and their emotional authenticity for students' emotional responses in class on two levels of analysis: A generalised (i.e. trait) level and a situation specific (i.e. state) level. In study 1, we investigated on a generalised trait level the relation between teachers' emotions and emotional authenticity and students' perceptions thereof, as well as whether teachers' emotions and emotional authenticity impacted students' emotions. To account for the high dynamic and context specificity of emotions, we used ESM in study 2 and investigated relations between perceived teacher emotions and authenticity and students' own momentary emotional experiences on the situational level.

Overall, the present study results indicate that teachers' emotions and the authenticity of teachers' emotional displays are related to students' emotional experiences in the classroom. Our finding of teachers' enjoyment—in teachers' self-reports as well as assessed via students' perceptions—being related to students' enjoyment is in line with previous findings (Frenzel et al., 2018). Concerning the transmission of negative emotions (anger and anxiety), we found no transmission process on the generalised trait-level and utilising teachers' self-reports (study 1), yet found evidence for the transmission process based on students' in-situ perceptions (i.e. momentary assessment) of teachers' emotions (study 2).

Teachers' self-reported authenticity and students' perceptions thereof did not converge, nor did teachers' self-reported authenticity influence students' emotions (study 1). If students, however, perceived their teachers as more emotionally authentic, they responded with higher levels of enjoyment and lower levels of anger and anxiety (studies 1 and 2). Previous studies have already delineated the impact of the other's authenticity in social settings with regards to the (emotional) responses of the interaction partner mostly within the domain of service employees (e.g. Groth et al., 2009) or in laboratory studies (Johnston et al., 2010; Surakka & Hietanen, 1998). The present study extends these findings to the classroom and students' emotional responses therein. As such the present study closes a gap in classroom research that has addressed questions of teachers' emotional authenticity largely from the teachers' perspective (in the form of emotional dissonance: Keller, Chang et al., 2014; or surface acting as one emotional labour strategy: Philipp & Schüpbach, 2010).

Our findings showed that emotional authenticity perceived by students was not related to teachers' own reports of authenticity. As such, it is unclear what information students draw on when they report their teachers to be emotionally authentic or inauthentic. It may be that their assessment is rooted more in general liking of the teacher: This assumption is supported by the findings in study 1 that teachers who exhibited more positive as opposed to negative emotions are perceived as more authentic (significant correlations between students' perceptions of teachers' emotions and emotional authenticity, see Supplementary S1 and S2). However, results from study 2 call the assumption into question: The majority of variance in perceived authenticity lay on the situation level and perceived teacher authenticity was hence more influenced by momentary factors than by a general (and presumably stable) sympathy for the teacher.

Another reason for self-reported vs perceived emotional authenticity converging in previous studies but not in our study could lie in differences in study design. In previous

studies when emotional authenticity was experimentally manipulated authenticity was perceivable by observers (McLellan et al., 2010). Yet in these studies experimental manipulation of authenticity realised extremes of inauthenticity vs authenticity, whereas in our study students had to judge a teacher's naturally occurring range of authenticity which might not include these extremes. This might have led to a diminished detection accuracy of students. However, Groth et al. (2009) found employee self-reported authenticity positively related to customer perceived authenticity with respect to and assessed immediately after a service encounter. It stands to reason that students may be capable of evaluating teachers' momentary emotional authenticity (as employed in study 2), but not do so accurately on a generalised trait level (as employed in study 1). In fact, for emotional self-reports, generalised trait assessments are assumed to be biased as they depend more strongly on an individual's beliefs (Robinson & Clore, 2002), which has been shown in the educational context for teachers' emotions (Goetz et al., 2015), but not yet with respect to emotional authenticity. Future studies could use teachers' trait and state reports on emotional authenticity to explore the mechanisms which generate trait assessments of emotional authenticity in more detail, as well as investigate conditions under which emotional authenticity is accurately detected by students.

Implications and conclusion

The central tenet of the present study was that above and beyond teachers' emotions their emotional authenticity also matters to students' emotional responses. Our findings support this idea but should only be considered a first step. In parsing the effects of authentic vs inauthentic emotion expression on students, future research should consider which emotion it is teachers either authentically express, fake or suppress. The present study took the approach common in emotional labour literature and assessed emotional authenticity independently of whichever emotion it is that teachers express authentically at the moment. However, it can be argued that the extent of emotional authenticity depends on the emotion under consideration, and can vary across emotions (e.g. teachers could be authentic in the enjoyment expression and never fake it, but inauthentic in their anger expression, always suppressing it). Assessing authenticity contingent on and in relation to the specific emotion could also shed further light on the question about the extent to which authenticity is beneficial for students even in the event of authentically expressing negative emotions such as anger; our findings suggest that authenticity is beneficial even in that case, but it may be that there is a 'flip point' once passed authentically expressing negative emotions ceases to be adaptive for students.

How individuals regulate their emotions and the impact it has on their authenticity is relevant from two perspectives: Their own and the observers' perspective (Anderson et al., 2019). Thereby, the teachers' perspective particularly related to their health and well-being has been covered in many studies, whereas the impact it has on observers, i.e. the students, is still underexplored. One practical implication of the present study is that teachers should withdraw from an oversimplification of positive and negative display rules (i.e. faking positive and suppressing negative emotions) as the adaptive process behind display rules is likely more complex (see, for instance, Grandey & Melloy, 2017). Rather, teachers should cultivate an understanding of the emotions they are experiencing and displaying, monitoring their own behaviours, emotional responses and parsing

external and internal stimuli creating such emotional responses. In some respects, this can be seen as a skill or competence teachers can acquire (emotional competence, e.g. Jennings & Greenberg, 2009; emotional intelligence, e.g. Mérida-López & Extremera, 2017). However, this individual skill needs to be coupled to an organisational culture (Hargreaves, 1998a, 2000). That is, the school itself, the school leadership and teachers as a group need to establish a shared understanding that recognises teaching as an emotional endeavour and openly, yes: authentically, discusses the emotional challenges inherent in interacting daily with students.

In conclusion, our study set out to explore whether teachers' emotional authenticity above and beyond their emotion experience mattered to students' emotional reactions in the classroom. From past research, we know that teachers' emotional authenticity greatly matters with regards to their health and occupational well-being (see, for instance, Keller, Chang et al., 2014; Philipp & Schüpbach, 2010). However, this vein of research has largely neglected an interpersonal perspective that includes the primary interaction partners of teachers, the students. Based on our findings, the conclusion is that emotional authenticity not only matters to teachers, but also to students: High teacher emotional authenticity fosters adaptive emotional reactions in students, that is higher levels of enjoyment and lower levels of anger and anxiety. The prevalent premise of 'Don't show them!' (Sutton, 2004, p. 379) when it comes to teachers regulating their negative emotions is to be welcomed because of the emotional contagion processes. However, it also needs to be considered with caution in the case when so regulated emotions are perceived as inauthentic by students.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This research was supported by a grant from the Swiss National Science Foundation (SNSF) awarded to Thomas Goetz, University of Vienna (Grant No. 100014_ 131713/1).

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Ethical statement

The present study was conducted in compliance with ethical standards expressed in the WMA Declaration of Helsinki and the American Psychological Association. Furthermore, the study has been approved and all study procedures have been deemed appropriate by the Institutional Review Board of the University of Konstanz, Germany.

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Appendix

Table A1. Item Wordings Study 1.

Item/scale	Item Wording
Teacher questionnaire	
Teacher enjoyment	During teaching in CLASS, I am usually happy. *Im Unterricht in der KLASSE freue ich mich in der Regel.*
Teacher anger	During teaching in CLASS, I am usually angry. *Im Unterricht in der KLASSE ärgere ich mich in der Regel.*
Teacher anxiety	During teaching in CLASS, I am usually tense and nervous. *Im Unterricht in der KLASSE bin ich in der Regel angespannt und nervös.*
Emotional Authenticity [a]	During teaching in CLASS, … *Während des Unterrichts in KLASSE …* … I usually suppress my true emotions. *… unterdrücke ich in der Regel meine wahren Gefühle.* … I usually express emotions that I don't truly experience. *… bringe ich in der Regel bestimmte Gefühle zum Ausdruck, die ich eigentlich nicht empfinde.*
Student questionnaire	
Perceived teacher enjoyment	My teacher is usually happyin CLASS. *Meine Lehrperson in FACH freut sich in FACHunterricht in der Regel.*
Perceived teacher anger	My teacher is usually angry in CLASS. *Meine Lehrperson in FACH ärgert sich in FACHunterricht in der Regel.*
Perceived teacher anxiety	My teacher is usually tense and nervous in CLASS. *Meine Lehrperson in FACH ist im FACHunterricht in der Regel angespannt und nervös.*
Student enjoyment	In CLASS I am usually happy. *Im FACHunterricht freue ich mich in der Regel.*
Student anger	In CLASS I am usually angry. *Im FACHunterricht freue ich mich in der Regel.*
Student anxiety	In CLASS I am usually anxious. *Im FACHunterricht freue ich mich in der Regel.*
Teachers' emotional authenticity [a]	My teacher in CLASS usually expresses emotions which s/he isn't truly experiencing. *Meine Lehrperson in FACH bringt im FACHunterricht in der Regel Gefühle zum Ausdruck, die sie eigentlich nicht empfindet.* My teacher in CLASS usually suppresses his/her true emotions. *Meine Lehrperson in FACH unterdrückt im FACHunterricht in der Regel ihre wahren Gefühle.*

Note. [a] Items were recoded and averaged to create one indicator for authenticity where higher values indicate higher emotional authenticity.

Table A2. Item Wordings Study 2.

Item	Item Wording
Perceived teacher emotions	
Teacher enjoyment	At the moment, my teacher is happy. *Meine Lehrperson freut sich im Moment.*
Teacher anger	At the moment, my teacher is angry. *Meine Lehrperson ärgert sich im Moment.*
Teacher anxiety	At the moment, my teacher is tense and nervous. *Meine Lehrperson ist im Moment angespannt und nervös.*
Perceived teacher emotional authenticity	
Authenticity	The emotions my teacher displays at the moment are authentic. *Die Gefühle, die meine Lehrperson im Moment zeigt, wirken echt.*
Students' emotions	
Enjoyment	I am happy at this moment. *Im Moment freue ich mich.*
Anger	I am angry at this moment. *Im Moment ärgere ich mich.*
Anxiety	I am anxious at this moment. *Im Moment habe ich Angst.*

Note. Item wordings give the original German wording (in italics) as well as their translation to English. All items were rated from (1) *strongly disagree* to (5) *strongly agree*.